Type Examination Certificate CML 19ATEX4114X Issue 0

1 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

2 Equipment **EC**** Range of Barrier Cable Glands and Stopper Boxes**

3 Manufacturer **Peppers Cable Glands Limited**

4 Address **Stanhope Road,**
Camberley, Surrey,
GU15 3BT,
United Kingdom

5 The equipment is specified in the description of this certificate and the documents to which it refers.

6 CML B.V. , Chamber of Commerce No 6738671, Hoogoorddreef 15, Amsterdam, 1101 BA, The Netherlands, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design of equipment intended for use in potentially explosive atmospheres given in Annex II of Directive 2014/34/EU.

The examination and test results are recorded in the confidential reports listed in Section 12.

7 If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to conditions of certification (affecting correct installation or safe use). These are specified in Section 14.

8 This Type Examination certificate relates only to the design and construction of the specified equipment or component. Further requirements of Directive 2014/34/EU Annex VIII apply to the manufacture of the equipment or component.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the confidential report, has been demonstrated through compliance with the following documents:

EN IEC 60079-0:2018 EN 60079-15:2010

10 The equipment shall be marked with the following:

II 3 G

Ex nR IIC Gc

(Refer to description for service temperature)

A C Smith
Technical Operations Director

11 Description

The **EC**** Range of Barrier Cable Glands & Stopper Boxes** are metallic and are intended for use with differing cables or conductors, dependent on their type. They allow the entry of the cable or conductors into flameproof, increased safety, restricted breathing and dust protected enclosures without compromising the explosion protection provided by the enclosure, in accordance with relevant codes of practice. All types comprise of various entry thread sizes, which are dependent upon gland size and their cable sealing ability range.

The EC**** Range of Barrier Cable Glands & Stopper Boxes, when installed with the silicone O-ring provided by the manufacturer, have an ingress protection rating of IP66 and IP68 (tested at a depth of 100 m for 7 days) and IPX9.

Ts = -60°C to 135°C for Peppers T1000 Compound

Ts = -60°C to 120°C for Peppers T2000 Compound

Design Options for all EC** Range of Barrier Cable Glands & Conduit Stopper Boxes**

Entry component and EC*-S conduit nut internal thread forms:**

- ISO Metric to BS3643-1:2007 (ISO 965-1) and BS 3643-3:2007 (ISO 965-3) 6g fit (male) 6H (female)
- NPT to ANSI/ASME B1.20.1:1983, gauging to clause 8
- NPSM to ANSI/ASME B1.20.1:1983, gauging to clause 9
- BSPT to BS 21:1985 (ISO 7/1) standard threads only clause 5.4, gauging to clause 5A, system A
- BSPP to BS 2779:1986 (ISO 228/1) class A full form external threads
- PG to DIN 40430:1971
- ET to BS 31:1940 (1979) Table A

All entry and conduit threads are within the dimensional parameters of the gland body and comply with clause 5.3 of IEC/EN 60079-1:2014 and Annex C Clause C.2.2.

Alternative metallic materials of manufacture (the asterisk in the type number is replaced with a letter designation for one of the material types below):

- Brass to BS EN 12164 / BS EN 12165 / BS EN 12168 CW614N CuZn39Pb3
- Ecobrass to C69300
- Stainless Steel to EN 10088-3 grades 316S11, 316S31 316L

Additionally, all metallic materials may be surface coated to limit electrolytic reaction between dissimilar materials, providing the coating does not alter the dimensions of the component part.

The **EC*-U** Range of Barrier Cable** are suitable for use with unarmoured, braided and screened, circular cables; they comprise:

- a threaded entry body to tighten into an associated enclosure; this is optionally fitted with a silicone O-ring and internally coated with a release agent.
- a front and rear ferrule, coupled by an O-ring and also fitted with an external O-ring to aid assembly, which fits into the entry body to make a part chamber into which either “Peppers T1000 Compound” or “Peppers T2000 Compound” is applied to provide an inner seal around the conductors.
- a midcap nut that couples the entry body and ferrule together
- a back nut that screws into the seal housing to compress the outer sheath seal

Design options:

- A brass continuity washer may be fitted to all sizes that are used with lead inner sheathed cables, glands with this modification are designated with a ‘2’ in their type number.

Additional assembly options are described by the following designation coding: -

Gland Type:	**EC*-U****					
Available Part No’s.:	**E**	**C**	*** **1 2**	**U**	*** **2**	*** **B S**

Options:	EC1	Peppers T1000 Compound
	EC2	Peppers T2000 Compound
	2	Lead Sheath Cable Continuity Washer
	B	Brass material
	S	Stainless Steel material

Type EC*-U** Compound-Filled Cable Glands

Gland Size	Standard Entry threads		Max Ø over Cores	Max No of Cores		Outer Sheath		Inner Sheath Min T2000 Only
	Metric	NPT		T1000	T2000	Min	Max	
16S	M16	3/8”	8.9	12	12	3.4	8.4	4.0
16	M20	½”	10.4	15	15	3.4	8.4	4.0
20s	M20	½”	10.4	35	15	4.8	11.7	4.0
20	M20	½”	12.5	40	20	9.5	14.0	4.0
25	M25	¾”	16.5	60	30	11.7	18.5	8.0
32	M32	1	23.5	80	50	18.1	26.3	14.0
40	M40	1	28.8	130	65	22.6	32.2	16.0
50s	M50	1	34.2	200	100	28.2	38.2	20.0
50	M50	2”	39.4	400	100	33.1	44.1	20.0
63s	M63	2”	44.8	400	130	39.3	50.1	30.0
63	M63	2 ½”	50.0	425	130	46.7	56.0	30.0

Gland Size	Standard Entry threads		Max Ø over Cores	Max No of Cores		Outer Sheath		Inner Sheath Min T2000 Only
	Metric	NPT		T1000	T2000	Min	Max	
75s	M75	2 ½”	55.4	425	-	52.3	62.0	-
75	M75	3”	60.8	425	-	58.0	68.0	-
80	M80	3”	64.4	425	-	61.9	72.0	-
85	M85	3”	69.8	425	-	69.1	78.0	-
90	M90	3 ½”	75.1	425	-	74.1	84.0	-
100	M100	3 ½”	80.5	425	-	81.8	90.0	-

The **EC*-X** Range of Barrier Cable Glands** are suitable for use with, unarmoured, braided and screened, circular and non-circular cables. They may also be used as a line bushing for terminating flying leads or for the direct inter-connection of associated enclosures; they comprise:

- A threaded entry body to tighten into an associated enclosure; this is optionally fitted with a silicone O-ring and internally coated with a release agent.
- A front and rear ferrule, coupled by an O-ring and also fitted with an external O-ring to aid assembly, which fits into the entry body to make a part chamber into which either “Peppers T1000 Compound” or “Peppers T2000 Compound” is applied to provide an inner seal around the conductors.
- A midcap nut that couples the entry body and ferrule together

Design option:

- A brass continuity washer may be fitted in the 20S to 100 sizes that are used with lead inner sheathed cables, glands with this modification are designated with a ‘2’ in their type number.

Additional assembly options are described by the following designation coding: -

Gland Type:	**EC*-X****					
Available Part No’s.:	**E**	**C**	*** **1 2**	**X**	*** **2**	*** **B S**

Options:	EC1	Peppers T1000 Compound
	EC2	Peppers T2000 Compound
	2	Lead Sheath Cable Continuity Washer
	B	Brass material
	S	Stainless Steel material

Type EC*-X** Compound-Filled Cable Glands

Gland Size	Standard Entry threads		Max Ø over Cores	Max No of Cores		Outer Sheath Max	Inner Sheath Min T2000 Only
	Metric	NPT		T1000	T2000		
16S	M16	3/8”	8.9	12	12	10.0	4.0
20s	M20	½”	10.4	35	15	11.7	4.0
20	M20	½”	12.5	40	20	14.0	4.0
25	M25	¾”	16.5	60	30	18.5	8.0
32	M32	1”	23.5	80	50	26.3	14.0
40	M40	1 ¼”	28.8	130	65	32.2	16.0
50s	M50	1 ½”	34.2	200	100	38.2	20.0
50	M50	2”	39.4	400	100	44.1	20.0
63s	M63	2”	44.8	400	130	50.1	30.0
63	M63	2 ½”	50.0	425	130	56.0	30.0
75s	M75	2 ½”	55.4	425	-	62.0	-
75	M75	3”	60.8	425	-	68.0	-
80	M80	3”	64.4	425	-	72.0	-
85	M85	3”	69.8	425	-	78.0	-
90	M90	3 ½”	75.1	425	-	84.0	-
100	M100	3 ½”	80.5	425	-	90.0	-

The **EC*-C*** Range of Barrier Cable Glands** are suitable for use with circular, pliable wire, single wire and steel tape armoured cables along with braided/screened and unarmoured cables; they comprise:

- A threaded entry body to tighten into an associated enclosure, this optionally fitted with a silicone O-ring and internally coated with a release agent.
- A front ferrule and cone, coupled by an O-rig and also fitted with an external O-ring to aid assembly, which fits into the entry component to make a part chamber into which either “Peppers T1000 Compound” or “Peppers T2000 Compound” is applied to provide an inner seal around the conductors.
- A clamp ring that secures cable armour to the cone and also provides earth protection.
- A middle cap nut that fastens to the entry body to captivate the clamp ring, cone and compound.
- A back nut, enclosing a white, silicone, elastomeric, cable outer sheath seal and skid washer, that screws onto the external thread of the mid cap.

Design option:

- A brass continuity washer may be fitted in all the sizes that are used with lead inner sheathed cables, glands with this modification are designated with a '2' in their type number.

Additional assembly options are described by the following designation coding: -

Gland Type:	**EC*-C***						
Available Part No's.:	**E**	**C**	*** **1 2**	**C**	*** **2**	*** **B S**	*** **R**

Options:		
	EC1	Peppers T1000 Compound
	EC2	Peppers T2000 Compound
	2	Lead Sheath Cable Continuity Washer
	B	Brass material
	S	Stainless Steel material
	R	Reduced Bore option

Type EC*-C** Compound-Filled Cable Glands

Gland Size	Standard Entry thread		Inner sheath Min	Inner Sheath	Outer Sheath		Reduced Bore		Max dia over cores	Max No of cores T1000	Max No of cores T2000
	Metric	NPT	T2000 Only	Max	Min	Max	Min	Max			
16S	M16	3/8"	4.0	10.0	8.4	13.5	6.7	10.3	8.9	12	12
16	M20	½"	4.0	11.7	8.4	13.5	6.7	10.3	10.4	15	15
20S	M20	½"	4.0	11.7	11.5	16.0	9.4	12.5	10.4	35	15
20	M20	½"	4.0	14.0	15.5	21.1	12.0	17.6	12.5	40	20
25	M25	¾"	8.0	18.5	20.3	27.4	16.8	23.9	16.5	60	30
32	M32	1"	14.0	26.3	26.7	34.0	23.2	30.5	23.5	80	50
40	M40	1 ¼"	16.0	32.2	33.0	40.6	28.6	36.2	28.8	130	65
50S	M50	1 ½"	20.0	38.2	39.4	46.7	34.8	42.4	34.2	200	100
50	M50	2"	20.0	44.1	45.7	53.2	41.1	48.5	39.4	400	100
63S	M63	2"	30.0	50.1	52.1	59.5	47.5	54.8	44.8	400	130
63	M63	2 ½"	30.0	56.0	58.4	65.8	53.8	61.2	50.0	425	130
75S	M75	2 ½"	-	62.0	64.8	72.2	60.2	68.0	55.4	425	-
75	M75	3"	-	68.0	71.1	78.0	66.5	73.4	60.8	425	-
80	M80	3"	-	72.0	77.0	84.0	71.9	79.4	64.4	425	-
85	M85	3"	-	78.0	79.6	90.0	75.0	85.4	69.8	425	-
90	M90	3 ½"	-	84.0	88.0	96.0	82.0	91.4	75.1	425	-
100	M100	3 ½"	-	90.0	92.0	102.0	87.4	97.4	80.5	425	-

The **EC*-S** Range of Conduit Stopper Boxes** are suitable for use with circular cables, non-circular cables or conductors carried in conduit, providing a flameproof barrier entry into enclosures. Additionally, they may be used as a line bushing for terminating flying leads or for the direct inter-connection of associated enclosures; they comprise:

- A threaded entry body to tighten into an associated enclosure, this is optionally fitted with a silicone O-ring and internally coated with a release agent.
- A ferrule, fitted with an external O-ring to aid assembly, which fits into the entry body to make a part chamber into which eithera “Peppers T1000 Compound” or “Peppers T2000 Compound” is applied to provide an inner seal around the cable conductors or flying leads.
- A union nut that couples the entry body and ferrule together
- A conduit nut that is screwed and secured into the ferrule with adhesive.

Additional assembly options are described by the following designation coding: -

Gland Type:	**EC*-S****					
Available Part No’s.:	**E**	**C**	*** **1** **2**	**S**	*** **B** **S**	*** **C** **F** **M**

Options:		
	1	Peppers T1000 Compound
	2	Peppers T2000 Compound
	B	Brass material
	S	Stainless Steel material
	C	Spiral Conduit Option
	F	Female conduit option
	M	Male conduit option

Type EC*-S** Compound-Filled Cable Glands

Stopper box size	Standard male connection thread size		Standard female connection thread sizes		Max Cable size inside fitting	Max Diameter over Cores	Max No of Cores		Min Cable Inner Sheath T2000 Only
	Metric	NPT	Metric	NPT			T1000	T2000	
16S	M16	3/8”	M16	3/8”	10.0	8.9	12	12	4.0
20	M20	½”	M20	½”	14.0	12.5	40	20	4.0
25	M25	¾”	M25	¾”	20.0	17.8	60	30	8.0
32	M32	1”	M32	1”	26.3	23.5	80	50	14.0
40	M40	1 ¼”	M40	1 ¼”	32.2	28.8	130	65	16.0
50s	M50	1 ½”	M50	1 ½”	38.2	34.2	200	100	20.0
50	M50	2”	M50	2”	44.1	39.4	400	100	20.0
63s	M63	2”	M63	2”	50.1	44.8	400	130	30.0

Stopper box size	Standard male connection thread size		Standard female connection thread sizes		Max Cable size inside fitting	Max Diameter over Cores	Max No of Cores		Min Cable Inner Sheath T2000 Only
	Metric	NPT	Metric	NPT			T1000	T2000	
63	M63	2 ½"	M63	2 ½"	56.0	50.0	425	130	30.0
75s	M75	2 ½"	M75	2 ½"	62.0	55.4	425	-	-
75	M75	-	M75	2 ½"	68.0**	60.8**	425	-	-
75	-	3"	-	3"	68.0	60.8	425	-	-
80	M80	3"	M80	3"	72.0	64.4	425	-	-
85	M85	3"	M85	3"	78.0	69.8	425	-	-
90	M90	3 ½"	M90	3 ½"	84.0	75.1	425	-	-
100	M100	3 ½"	M100	3 ½"	90.0	80.5	425	-	-
100	-	4"	-	4"	90.0	80.5	425	-	-
Note:	* 2 ½" NPT thread option (Max Cable Diameter = 65.0) (Max Diameter over Cores = 58.1) * 2 ½" NPSM thread option (Max Cable Diameter = 67.0) (Max Diameter over cores = 59.9)								

Design options:

1. All gland types may be manufactured with a larger thread size than the standard entry thread listed within the product description.
2. All gland types with the following alternate threaded entry threads complying with the requirements of EN 60079-1 are intended to be used as replacement entry devices within existing installations with equipment that have threaded entries no longer permitted by the current edition of EN 60079-1
    - NPSM ANSI/ASME B1.20.1:1983
    - BSPT BS21:1985 (ISO 7/1; BS EN 10226-1:2004 'standard threads'
    - BSPP BS EN ISO 228-1 :2003; BS EN ISO 2228-2:2003 class A full form 'external threads'
    - PG DIN 40430:1971
    - ET BS 31:1940 (1979) Table 'B'

    All alternative trade size thread forms are manufactured within the dimensional parameter of the standard entry threads of the gland entry body, and relevant constructional compliance length and engagement requirements in accordance with their product markings.

12 Certificate history and evaluation Reports

Issue	Date	Associated report	Notes
0	14 Aug 2019	R12370A/00	Issue of Prime Certificate

Note: Drawings that describe the equipment or component are listed in the Annex.

13 Conditions of Manufacture

None.

14 Specific Conditions of Use (Special Conditions)

The following conditions relate to safe installation and/or use of the equipment.

i. The cable glands/stopper boxes shall not be used in enclosures where the temperature, at the point of entry/mounting, is outside of the range -60°C to +135°C for Peppers T1000 Compound and -60°C to +120°C for Peppers T2000 Compound.

ii. The interface seals comply with the requirements of the standards listed in this report when the cable glands are fitted to a representative enclosure having a smooth flat mounting surface. In practice the interface between the male thread of the glands and their associated enclosure cannot be defined, therefore it is the users' responsibility to ensure that the appropriate ingress protection level is maintained at these interfaces.

iii. The parallel threaded entry component threads will be suitably sealed using a method that is applicable to the associated equipment to which the gland will be attached. This will be in accordance with the relevant installation code of practice and will ensure that any ingress protection and restricted breathing sealing requirements are maintained.

iv. The threaded entry component threads without interface O-ring seals installed in an explosive dust atmosphere, within threaded entries, shall only be fitted into enclosures that have either:

- parallel entries that will ensure that a minimum of 5 full threads of contact will be maintained, this is in accordance with clause 5.1.2 of EN 60079-31:2014
- tapered entries that will ensure that a minimum of 3 ½ full threads of contact will be maintained, this is in accordance with clause 5.1.2 of EN 60079-31:2014

v. Cable glands sizes 75 up to 100 are not available with the Peppers T2000 Compound material option.

Certificate Annex

Certificate Number	**CML 19ATEX4114X**
Equipment	**EC**** Range of Cable Glands and Stopping Boxes and UL Range of Barrier Cable Glands**
Manufacturer	**Peppers Cable Glands Limited**

The following documents describe the equipment or component defined in this certificate:

Issue 0

Drawing No	Sheets	Rev	Approved date	Title
PCG/ATX/EC-C	1 of 1	1	14 Aug 2019	GA – Barrier glands for armoured and unarmoured cable, EC-C family
PCG/ATX/EC-U	1 of 1	1	14 Aug 2019	GA – Barrier cable glands for unarmoured cable, EC-U and EC-X families
PCG/ATX/EC-S	1 of 1	1	14 Aug 2019	GA – Barrier gland range conduit stopper box EC-S family
PCG/ATX/2M	1 of 1	11	14 Aug 2019	ATEX Component seal – Parts 2MI, 2MIS, 2MO, 2MOS, 2MOZS
PCG/ATX/3B	1 of 1	1	14 Aug 2019	ATEX Component rear ferrulle part 3B
PCG/ATX/5B	1 of 1	1	14 Aug 2019	ATEX Component Middle CAP Part 5B
PCG/ATX/6M	1 of 1	6	14 Aug 2019	ATEX Component Outer CAP Part 6M
PCG/ATX/6U	1 of 1	1	14 Aug 2019	ATEX Component outer CAP Part 6U
PCG/ATX/10MU	1 of 1	1	14 Aug 2019	ATEX Component Clamp Ring Parts 10MU
PCG/ATX/11M	1 of 1	3	14 Aug 2019	ATEX Component SKID Washer Parts 11MO
PCG/ATX/31B	1 of 1	2	14 Aug 2019	ATEX Component Barrier Gland Entry Body Part 31B
PCG/ATX/31BT	1 of 1	1	14 Aug 2019	ATEX Component Barrier Gland Entry Body Tapered Threads Part 31BT
PCG/ATX/33B	1 of 1	1	14 Aug 2019	ATEX Component Barrier Gland Cone Part 33B – for all cables
PCG/ATX/34B	1 of 1	1	14 Aug 2019	ATEX Component Barrier Gland Front Ferrule Part 34B
PCG/ATX/34V	1 of 1	4	14 Aug 2019	ATEX Component Ferrule Part 34V
PCG/ATX/35BC	1 of 1	1	14 Aug 2019	ATEX Component Rotating Conduit Nut, SPIRAL Part 35BC
PCG/ATX/35V	1 of 1	6	14 Aug 2019	ATEX Component Conduit Nut Metric Thread Part 35V
PCG/ATX/35VC	1 of 1	6	14 Aug 2019	ATEX Component Conduit Nut, Non-standard Sizes & Threads Part 35VC
PCG/ATX/35VT	1 of 1	8	14 Aug 2019	ATEX Component Conduit Nut, NPT Thread Part 35V
PCG/ATX/36B	1 of 1	1	14 Aug 2019	ATEX Component Union Nut Part 36B
PCG/ATX/36U	1 of 1	1	14 Aug 2019	ATEX Component Middle Cap Part 36U

Certificate Annex

Certificate Number	**CML 19ATEX4114X**
Equipment	**EC**** Range of Cable Glands and Stopping Boxes and UL Range of Barrier Cable Glands**
Manufacturer	**Peppers Cable Glands Limited**

Drawing No	Sheets	Rev	Approved date	Title
PCG/ATX/36V	1 of 1	5	14 Aug 2019	ATEX Component Union Nut Part 36V
PCG/ATX/82N	1 of 1	8	14 Aug 2019	ATEX Component Seal Parts 82NI & 82NIS
PCG/ATX/82V	1 of 1	7	14 Aug 2019	ATEX Component Seal Parts 82VIN, 82VIS
PCG/ATX/88NMM	1 of 1	7	14 Aug 2019	ATEX Conduit NUT, Male Part 88NMM
PCG/ATX/91A	1 of 1	4	14 Aug 2019	Component SKID Washer – Parts 91AS, 91AB, 91ABT
PCG/ATX/91V	1 of 1	6	14 Aug 2019	ATEX Component SKID Washer – Parts 91V, 91VB, 91VBT
PCG/ATX/PEXMP	1 of 1	4	14 Aug 2019	Hazardous Area Approved Products – Marking Plan
PCG/ETDMV	1 of 1	9	14 Aug 2019	Standard Thread Chart ATEX Certified Glands Using “M”, “V” & “N” Components
PCG/ETOR	1 of 1	12	14 Aug 2019	Accessory Component Entry Thread O-ring Seal Part OR
PCG/LW1	1 of 1	8	14 Aug 2019	Accessory Component Continuity Washer Part LW1
PCG/MATS/SB	1 of 1	5	14 Aug 2019	Standard Materials ATEX Certified Glands Using “M”, “V” and “N” Components
PCG/OR	1 of 1	15	14 Aug 2019	Accessories Component – O-ring Seal CR & UL Barrier Cable Gland Range Internal O-ring Seals
PCG/ORGD	1 of 1	6	14 Aug 2019	Component Male Threaded Entry Component O-ring Groove Detail